

CLIMATOLOGICAL DATA FOR OCTOBER, 1911.

DISTRICT NO. 9, COLORADO VALLEY.

FREDERICK H. BRANDENBURG, District Editor.

GENERAL SUMMARY.

October was colder and much wetter than the average throughout the Colorado Basin. Departures from normal weather conditions are usually not a serious matter in this district, but during October, 1911, all records for destruction-of property in the district due to such causes were broken. Had the precipitation in the San Juan Basin come in the way common to October—that is, in the form of snow, instead of rain, in the high mountain regions—several lives would not have been lost, and property estimated at \$1,000,000 would not have been destroyed. Downpours of rain during the warmer months of the year from local thunderstorms are expected occasionally in the mountains, but the areas affected are usually small. With the coming of autumn, thunderstorms give way to general storms that spread their influence over a wide scope of country, causing sharp falls in temperature and occasional heavy snowfalls. On October 4 and 5, instead of these last-named conditions, mild temperatures prevailed as high as or higher than timber line, permitting precipitation in the form of rain rather than snow, the usual accompaniment of storms of this character at high levels. Heavy snowfalls may cause inconvenience and interrupt traffic for a short time, but there is no instance where 2 days of snowfall has blocked railroads for 6 weeks, as has been caused by rain in this case on one line into Durango, Colo. Details of the damage caused by this remarkable storm on the San Juan watershed will be found in another column. On the adjacent drainage areas in the district heavy rains also occurred, and there was some loss of bridges and damage to trails and roads. From the 26th to the 29th stormy weather was again general, with heavy rainfall in localities in Arizona and western New Mexico. In these localities, however, the fall was quite beneficial in reviving the grass on the ranges and replenishing the water holes. Apart from the few stormy days, weather conditions during October were favorable.

TEMPERATURE.

The mean of the 150 stations reporting was 52.7° , or 1.5° below the normal. By subdivisions the means and departures were: Western Wyoming, 37.5° , -2.2° ; western Colorado, 42.1° , -2.1° ; eastern Utah, 47° , -1.2° ; western New Mexico, 53° , -1.2° ; Arizona, 61.9° , -1.3° ; and southeastern Nevada, 56.6° . The highest monthly mean was 74° at Mohawk Summit, Ariz., and the lowest, 25.2° , at Corona, Colo. Over the greater part of the area not in the mountains the first 6 days were cooler than the normal; then followed nearly 2 weeks with temperatures above the normal in Arizona, while weather somewhat cooler than the normal prevailed in the remainder of the district. A cold snap was general from the 20th to 23d, inclusive. During this period the lowest temperatures

of the month were generally noted. The succeeding days, which were slightly warmer than the normal, were followed by cool weather. The highest temperature, 105° , was noted at Casa Grande, Ariz., and readings of 100° or higher were noted at 5 other stations in Arizona. The lowest temperature, -17° , was noted at Dillon, Colo., on the 21st; 5 other stations, all in Colorado, reported readings below zero on the same date.

PRECIPITATION.

The average for the 196 stations reporting was 2.59 inches, or 1.30 inches above the normal. The average for October, 1910, was 1.00 inch. By watersheds the averages and departures were: Green, 1.42, +1.06; Grand, 2.36, +1.19; San Juan, 4.04, +1.77; Little Colorado, 2.12, +1.24; Gila, 2.16, +1.41; Mimbres, 2.18, +0.74; and Colorado proper, 0.80, +0.27 inch. The greatest monthly amount was 10.65 inches at Gladstone, Colo., elevation 10,400 feet. Of this amount 8.05 inches fell on the 5th. A large number of stations reported excessive precipitation.

The snowfall occurred toward the close of the month and was confined to high-level stations in Colorado and 1 station in Utah. Monthly amounts of 10 inches or more were noted at 6 stations in Colorado.

The average number of days with 0.01 inch or more of precipitation was 4 in western Wyoming; 6 in western Colorado; 4 in eastern Utah; 5 in western New Mexico; 4 in Arizona; and 1 in southeastern Nevada; and for the district as a whole 5 days.

MISCELLANEOUS.

The amount of sunshine reported was as follows: Grand Junction 76 per cent of the possible; Durango 78; Flagstaff 81; Phoenix 80; and Yuma 93.

The relative humidity was above the average, except in the southwestern part of Arizona. The following values were reported: Grand Junction 60, Durango 63, Flagstaff 59, Phoenix 50, and Yuma 42 per cent.

FLOODS IN SOUTHWESTERN COLORADO AND NORTH-WESTERN NEW MEXICO.

FREDERICK H. BRANDENBURG, District Forecaster.

The worst flood since the settlement of the country occurred in the Dolores and San Miguel Rivers in western Colorado, the San Juan River and its tributaries, the upper Rio Grande in Colorado, and the tributaries of the Rio Grande in northwestern New Mexico on October 5 and 6, 1911. Heavy local downpours have occasionally occurred in the mountains during the latter part of summer, causing severe floods of short duration over limited areas, but there is no previous record, or even tradition, among the Indians of such severe floods occur-

TABLE 1.—*Climatological data for October, 1911. District No. 9—Continued.*

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.			Sky.			Prevailing wind direction.	Observers.				
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.	Number of rainy days 0.01 inch or more.	Number of partly cloudy days.	Number of clear days.				
Arizona—Continued.																					
Mesa.	Maricopa.	1,244	16	68.1	— 1.6	93	13	47	22†	40	1.50	+ .98	.55	0	5	22	6	3	sw.		
Mohawk Summit.	Yuma.	538	12	74.0	— 2.6	100	13	52	29	35	0.14	— .05	.14	0	1	24	5	2	e.		
Naco.	Cochise.	4,579	2										1.70	0	5	20	0	5	sw.		
Natural Bridge.	Gila.	4,990	22										4.36	+ 2.96	1.76	0	6	20	7	4	sw.
Oracle.	Pinal.	4,500																			
Osborn.	Cochise.	4,676	2																		
Paradise.	do.	5,436	5	55.3	— 2.8	84	16	25	22	48	2.72		.41	0	3	25	2	4	w.		
Parker.	Yuma.	345	15	69.0	— 2.8	100	13	33	22	58	0.05	— .15	.05	0	1	23	2	6	sw.		
Payson.	Gila.	5,550	3	55.7	— 7.7	87	13	25	22†	49	3.55		1.59	0	5	18	4	9	sw.		
Phoenix.	Maricopa.	1,108	17	69.0	— 1.2	94	13	47	22	39	2.24	+ 1.89	1.16	0	5	20	8	3	e.		
Phoenix (1).	do.	1,092	19	68.0	— 1.0	96	13†	40	22	48	1.58	+ 1.17	.74	0	4	23	3	5	se.		
Phoenix (2).	do.	1,189	3	69.4		96	1	44	29	43	1.73		.71	0	5	21	6	4	sw.		
Pinal Ranch.	Pinal.	4,520																			
Pinto.	Apache.	5,660	7																		
Prescott.	Yavapai.	5,320	46	52.2	— 2.1	86	18	22	22	54	2.62	+ 1.81	1.10	0	7	24	2	5	sw.		
Quartzsite.	Yuma.	800	4	68.4		97	8†	36	22	48	1.20		1.20	0	1	23	6	2	n.		
Redrock.	Pinal.	1,884	4	70.6		92	11†	46	23†	39	1.87		1.45	0	4	21	9	1	w.		
Roosevelt.	Gila.	2,175	7	70.2		87	13	50	6	30	4.10		1.50	0	3	12	13	6	w.		
Sacaton.	Pinal.	1,280	4	69.1		96	13	36	22	50	1.40		.47	0	4	21	7	3	sw.		
St. Johns.	Apache.	5,650	8	51.9		80	14	19	21	51	1.94		1.45	0	4	18	8	5	sw.		
St. Michaels.	do.	6,950	24	49.2	+ 1.8	83	2	18	21	45	2.65	+ 1.49	1.40	0	5	22	5	4	sw.		
Salome.	Yuma.	1,875	4	66.1		94	14	37	22	52	1.41		.75	0	3	22	5	4	s.		
San Carlos.	Gila.	2,456	28	61.5	— 2.9	92	2†	30	26†	52	2.32	+ 1.40	.94	0	5	16	12	3	w.		
San Simon.	Cochise.	3,609	25	69.8	+ 3.9	98	1†	44	25†	48	1.50	+ 1.09	1.00	0	2	24	5	2	sw.		
Seligman.	Yavapai.	5,219	7	54.8		87	3†	29	16†	52	1.02		.43	0	3	21	7	3	sw.		
Sentinel.	Maricopa.	685	13	72.4	— 0.5	97	9†	49	22†	44	0.47	+ .33	.26	0	2	20	7	4	sw.		
Silverbell.	Pima.	2,650	6	72.0		99	11	46	29	43	1.65		.90	0	2	27	2	2	sw.		
Snowflake.	Narajo.	5,644	4	51.5		80	17	18	22	52	2.01		.70	0	5	18	3	10	sw.		
Springerville.	Apache.	6,862	1	45.0		70	17	14	21	50	2.08		.70	0	4	21	6	4	s.		
Supai.	Coconino.	3,200	3	63.2		88	14	38	21†	35	0.14		.12	0	2	28	2	1	sw.		
Tempe.	Maricopa.	1,165	7	67.7		94	13†	43	22	45	2.16		.90	0	5	23	4	4	nw.		
Thatcher.	Graham.	2,800	10	62.8		90	4†	34	18	48	2.30	+ 1.55	1.15	0	5	22	5	4	w.		
Tombstone.	Cochise.	4,550	16	62.4	— 1.7	86	3	37	28	35	2.40	+ 1.90	1.68	0	4	24	4	3	sw.		
Truxton.	Mohave.	3,997	2	60.4		87	1	33	20†	46	0.85		.70	0	2	22	6	3	s.		
Tuba.	Coconino.	4,500	10	52.6	— 2.0	78	13	25	21	43	1.46	+ .85	.43	0	6	17	4	10	sw.		
Tucson.	Pima.	2,390																			
Tucson (1).	do.	2,380	3	65.8		93	13	35	30	51	1.23		.44	0	4	25	3	3	nw.		
Tucson (2).	do.	2,526	1	67.6		92	13	41	18†	47	1.15		.53	0	4	24	2	5	w.		
Vail.	do.	3,421	12	63.5	— 6.3	89	1	32	28	44	0.80	+ .57	.80	0	1	19	7	5	sw.		
Walnut Grove.	Yavapai.	3,649	18										3.64	+ 2.80	2.47	0	3	19	8	4	sw.
Wickenburg.	Maricopa.	2,072	13	63.0	— 1.9	88	2	35	17	44	1.43	+ 1.18	1.35	0	2	23	7	1	sw.		
Willcox.	Cochise.	4,184																			
Williams.	Coconino.	6,750	11	50.0	— 3.1	77	3†	20	6	52	3.68	+ 2.40	.94	0	7	18	11	2	sw.		
Winslow.	Navajo.	4,853																			
Yuma.	Yuma.	141	31	72.8	— 0.6	101	14	49	23	45	0.84	+ .65	.66	0	3	26	5	0	n.		
Yuma (1).	do.	150	4	67.7		97	14	39	23	52	0.67		.53	0	2	26	1	4	n.		
Nevada.																					
Caliente.	Lincoln.	4,407	1	50.0		74	9†	24	21†	46	0.03		0.03	0	1	29	0	2	ne.		
Logan.	Clark.	1,700	4	63.1		90	18	34	22†	48	0.80		0.80	0	1	22	3	6	s.		
																			Salt Lake Route. R. M. Filcher.		

*, †, *, etc., indicate respectively 1, 2, 3, etc., days missing from the record.

** Temperature extremes are from observed readings of the dry bulb; means are computed from observed readings.

† Also on other dates.

T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 2.—*Daily precipitation for October, 1911. District No. 9—Continued.*

Stations.	Watershed.	Day of month.																													Total.		
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
<i>Arizona—Contd.</i>																																	
Pinto.....	Little Colo..	T.																															1.25
Prescott.....	Hassayampa	.03	.07		.14	.10																										2.62	
Quartzsite.....	Colorado.....																																1.20
Redrock.....	Santa Cruz.....																																1.87
Roosevelt.....	Salt.....																																4.10
Sacaton.....	Gila.....																																1.40
St. Johns.....	Little Colo.....																																1.94
St. Michaels.....	do.....	.05																															2.65
Salome.....	Colorado.....																																1.41
San Carlos.....	Gila.....																																2.32
San Simon.....	do.....																																1.50
Selligman.....	Verde.....																																1.02
Sentinel.....	Gila.....																																0.47
Silverbell.....	Santa Cruz.....																																1.65
Snowflake.....	Little Colo.....																																2.01
Springerville.....	do.....																																2.08
Supai.....	Colorado.....																																0.14
Tempe.....	Salt.....																																2.16
Thatcher.....	Gila.....																																2.30
Tombstone.....	San Pedro.....																																2.40
Truxton.....	Colorado.....																																0.85
Tuba.....	Little Colo.....	.31																															1.46
Tucson.....	Santa Cruz.....																																1.23
Tucson (1).....	do.....																																1.15
Tucson (2).....	do.....																																0.80
Vail.....	do.....																																3.64
Walnut Grove.....	Hassayampa	.17																															1.43
Wickenburg.....	do.....																																3.68
Willcox.....	Desert.....																																0.84
Williams.....	Colorado.....																																0.67
Winslow.....	Little Colo.....																																0.80
Yuma.....	Colorado.....																																0.03
Yuma (1).....	do.....																																0.80
<i>Nevada.</i>																																	0.03
Caliente.....	Colorado.....																																0.03
Logan.....	do.....																																0.80

* Precipitation included in that of the next measurement.

† Separate dates of falls not recorded.

‡ Precipitation for the 24 hours ending on the morning when it is measured.

T. Precipitation is less than 0.01 inch rain or melted snow.

